

# **Iowa County Engineers Association Service Bureau**

**[www.iceasb.org](http://www.iceasb.org)**

**Final report on Iowa Highway Research Board project**

**TR-417**

prepared by:

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ICEA Service Bureau  
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Des Moines, Iowa 50309-4901

October 7, 2000

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<b>9. ABSTRACT</b>	
<p>The ICEA Service Bureau, created in 1998 after nearly seven years of prior effort, has now existed for 2½ years. Although assisted in starting up by a grant of \$300,000 from the Iowa Highway Research Board, it now operates exclusively on the basis of dues paid by 98 member counties. Its three person staff operates out of an office in Des Moines, Iowa, where the 28E agency subleases space from the Iowa State Association of Counties. Services, provided via the Internet, include News &amp; updates, Communications support, Files for download, On-line database driven applications, a reference center, and a business area. Future services are being identified by both formal and informal processes and the Bureau has established itself as a valued member of the county engineering world in Iowa.</p>	
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# Iowa County Engineers Association Service Bureau Final Report

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# **I Introduction**

## **1. Summary**

The Iowa County Engineers Association Service Bureau, or ICEASB, is a small agency, created by intergovernmental agreement between Iowa's county governments. It operates from an office in Des Moines, delivering information services to the State's 99 county road departments via an Internet website. Operations commenced in 1998, after five years of preparation. The organization's startup was assisted by a \$300,000 allocation from the Iowa Highway Research Board, which financed early operations. Today, the Service Bureau delivers a wide array of information services to member counties, who support it via annual dues assessments.

This report outlines how the Bureau came into existence, how it is organized, the services it provides, and enumerates what has been learned during its first two and a half years of operation.

### **1a. Origin**

The idea that led to the formation of the Service Bureau originated in the Iowa County Engineers Association Computer Utilization committee around 1991. Although credit is likely due to others as well, two county engineer assistants, Jon Burgstrum, of Clinton County, and Wayne Chizek, of Marshall County, were the first to explicitly propose setting up a computerized bulletin board system (BBS) for county engineers -- in an early spring meeting that year. Their proposal led to the creation and operation of an un-staffed County Engineer's BBS, operated by Iowa State University's Center for Transportation Research and Education (CTRE) on behalf of the county engineers. While that system served acceptably for a number of years, its limitations gradually apparent that staffing would be necessary if the service was ever to reach full potential. In addition, the Internet's rather sudden appearance made the use of dial-up BBS systems obsolete almost overnight. So, in 1994, the computer committee commenced efforts to propose and win support for a staffed service bureau. Three years later, the Iowa County Engineers Association (ICEA) authorized an ad hoc committee to make preparations for incorporating such an entity. Their work resulted in the creation of the ICEASB and its startup in 1998.

#### **1a.1 County Engineer's BBS**

As noted in the preceding section, the first step towards formation of the Service Bureau came when a proposal surfaced in the ICEA Computer Committee, in 1990 or 1991, that a County Engineers' Bulletin Board Service be created.

Considered state-of-the-art at that time, computer bulletin board systems were set up by loading a dedicated computer with special BBS software and connecting the machine to one or more phone lines. Remote users could then use modem communications software to dial in and connect their local computer to the BBS machine. During the on-line session, the subscriber could check for news, and download or upload files. While these capabilities may seem limited compared to what is now possible via the Internet, they were the most advanced technology available.

With the BBS concept as a model, the ICEA computer committee worked to identify what information could be made available via such a tool, and explored how one might be established. After numerous meetings, the following proposal emerged:

- a) That the ICEA Computer Committee would jointly apply to the Iowa Highway Research Board (IHRB) with the ISU Center for Transportation Research and Education (CTRE) for funding to set up and operate a County Engineers' BBS.
- b) That CTRE would set up the BBS computer in it's facilities in Ames, Iowa, connect it to toll-free inbound phone lines, and provide part-time staffing as needed to operate the system and maintain its contents.
- c) That the ICEA Computer committee would define how the BBS file structures would be arranged and provide the data files to be stored therein.

This proposal, with the endorsement of the Iowa Department of Transportation (DOT) Office of Local Systems, was first presented to ICEA's Executive Board. After due evaluation, the Executive Board indicated support for the project and it was presented to the Iowa Highway Research Board shortly thereafter. That body also approved, so a contract was executed between CTRE and the Iowa DOT, custodian of the Research Board's funds.

CTRE purchased the computer hardware and software, obtained the phone connections and got the system going. The ICEA Computer committee helped launch the new service by making an introductory presentation at the ICEA Mid-year conference in 1992, complete with a live demonstration, and by orchestrating a statewide purchase of modems for all counties.

As with all new things, the BBS generated a great deal of initial excitement and monthly usage figures rose rapidly. But difficulties also began surfacing. The ICEA Computer Committee and CTRE staff started out on very friendly terms, but the relationship between the two partners did not work as well as hoped due to differences in how each one viewed their mutual responsibilities.

Committee members became frustrated because, although CTRE staff did a good job of keeping the BBS in operation, they weren't as responsive to committee direction as desired. One area where this became very evident was the maintenance of the site's contents. Requests for updates, changes, and reorganization proved hard for CTRE to accomplish. This gradually led to the BBS's contents becoming stale and dampened end user enthusiasm. CTRE also experienced frustration because they were making a genuine effort to respond but the need for such work hadn't been anticipated or budgeted for, so they weren't able to do as well they would have liked. And, since their staff members had had no prior experience with county engineering, they had a difficult time determining how new files should be placed and labeled.

These issues led to a gradual stagnation of user interest in the BBS and, by the spring of 1993, the situation could be characterized as follows: only 1/3, (33), of the counties were using the system; of those, only 1/3, (11), were really active, and of those, only 1/3, (4), were really getting anything out of it. Then the floods of 1993 hit and usage dropped off dramatically. For the next six months, no one had time to either use or monitor the BBS - flood response and cleanup duties took precedence over everything else that year.

In the following spring, the Computer Committee met with CTRE and frankly debated if the BBS should be continued or terminated. All parties admitted that the service had not met expectations but decided that it was too soon to give up. So plans were made to revamp the directory structure and refresh the content of the site. Since the initial IHRB grant was nearly depleted at that point, the partners returned to the Research Board and requested funding to extend operations for a couple more years to see if the modifications would bring about greater success. The IHRB again concurred and funding for three more years was arranged.

With the changes, usage picked back up. In addition, the newly emerged Internet enabled the BBS to become the first email service for county engineers. But the ICEA Computer Committee and CTRE were soon at odds with each other again. The committee wanted CTRE to be much more active in updating and refreshing the site. CTRE made changes in how they operated and tried to reach the point where the committee was satisfied with their work, but never could quite figure out what the committee wanted them to do. Also, both parties had envisioned the BBS as a forum whose content would be hold user supplied files to be shared with others. This expectation went largely unfulfilled



and it gradually became apparent that the "peers sharing data" concept wasn't viable in practical use.

As a result of these experiences, the Computer Committee came to the conclusion that, to achieve success, the BBS would have to be restructured. They agreed that a revamped organization would need to meet the following requirements:

- a) It would need to have dedicated staff, with at least one member who was knowledgeable of everyday county engineering needs, to organize the site and to its contents current.
- b) The staff would need to be employed by and answer directly to the county engineers. (as opposed to having the county engineers play a third party role advising another organization how its employees ought to perform.)
- c) A new, more flexible mode of delivery would be needed.

Having come to this determination, the committee continued working with CTRE to maintain the BBS for the short term, but began actively exploring how to replace it. The term coined to represent the proposed successor was "Service Bureau"

## 1a.2 Washington State CRAB

In December 1994, the ICEA Computer Committee was pressing forward in the effort to define what a service bureau would be and do. It was also thinking hard on the related issues of a) how would it be organized, b) how would it be funded, c) how would they go about introducing the idea to the main body of county engineers, and d) what would it take to win approval of the idea.

At that point, a chance encounter helped significantly advance their research and planning. Iowa's first Total Quality Management conference for transportation officials had been organized for December 1994. One of the featured speakers was Eric Berger, the Director of a Washington state agency known as the Washington County Road Administration Board, better known as "CRAB." In the course of his presentation he told about having set up a service bureau for the counties in his state. This caught the attention of Steve De Vries, Mills County Engineer, who was serving as chair of the ICEA compute committee. De Vries made contact with Berger and asked for more information on the bureau: how was it set up, how was it financed, what did it do, how did end users access it. Berger's answers convinced his listener that not only was a Service Bureau possible, but that a model was available from which Iowa could draw some guidance.

When the findings gleaned from the encounter at the quality initiative conference were related to the rest of the Computer Committee, they readily agreed. It was then decided to propose



that two representatives of Iowa County engineering, an engineer and an assistant, be sent to Olympia, Washington to investigate the CRAB service bureau first hand and make a report back to ICEA. De Vries and Cedar County Assistant, Carroll Last, were nominated to make the trip if funding could be found.

The committee petitioned the ICEA Executive Board to cover the cost of airfare, lodging and meals, with the nominees' counties contributing the three days time required. This initial request was answered with a recommendation that the committee instead meet with Washington CRAB director Berger when he attended the National Association of County Engineers conference that was planned for April 1995. This was deemed reasonable and appropriate arrangements were made.

Eric Berger thus met the full ICEA Computer committee membership in April of that year and gave a detailed overview of both his County Road Administration Board and the service bureau they operated within it. After consideration of his input, the committee concluded that it still needed more information and that an investigative trip remained warranted.

A second petition to the ICEA Executive Board was answered affirmatively and, in September 1995, De Vries and Last flew to Washington to tour the CRAB facilities and determine if a service bureau would be feasible in Iowa. The pair spent three days there, meeting the CRAB staff, Washington DOT officials, and visiting a number of Puget Sound area county road departments to see how they were using the service bureau's resources.

The trip's findings were:

- a) That a service bureau was indeed feasible, but needed a major mission in addition to the BBS type functions to become successful. (In Washington that mission was to maintain all county road base records and provide a pavement management system built on that data).
- b) That, if organized, Iowa's service bureau should have a Board of Directors made up of both engineers and county supervisors.
- c) That full time, dedicated staff were essential to making a success of the operation
- d) That it would be beneficial to Iowa's secondary road departments to have an entity created to work exclusively for their interests.
- e) That Iowa could not fund a service bureau with state funds, as was the case in Washington, and would need to find another method.

The findings were placed in a detailed report, which was presented to the ICEA membership at the Fall ISAC conference, held in Des Moines, in November 1995. Interest in creating an Iowa agency analogous to the CRAB began to develop as people digested the report and considered its recommendations. Since the 1996 National Association of County Engineers meeting happened to be set in Seattle, a special delegation of Iowa county engineers drove down to Olympia, while there, to visit the County Road Administration Board and assess it for themselves. The group was impressed with what they found and, upon return to Iowa, lent their support to proceeding with a similar initiative in Iowa.

### 1a.3 ICEA Planning & Promotion

In the spring of 1996, the ICEA Computer Committee developed two proposals for moving forward: one for the creation of an ICEA Service Bureau and a second, for the creation of a statewide, Internet based, system for coordinating local government project programming and tracking the development of those projects toward bid letting. The second item, called the Transportation Program Management System, or TPMS, intended as the bureau's "extra mission", arose from frustrations experienced by counties in dealing with the extra project programming work introduced by 1991 "ISTEA" Federal Aid to Highways program.

Initially, plans were made to present and seek approval of the proposals as tied projects. However, at the Spring 1996 ISAC conference, after endorsing the projects the ICEA Executive Board counseled the Computer Committee to present the TPMS proposal first and take time to further refine the Service Bureau before seeking its approval. The Computer Committee, heeding this advice, submitted the TPMS project for Iowa Highway Research Board consideration later that spring. While there was general support for that project by itself, concerns arose about where it would be housed when completed. This resulted in a request that ICEA wait to obtain final approval for TPMS until it could also present the Service Bureau for consideration. This turn of events effectively halted work on both projects. Six months elapsed before things were able to move forward again.

Things progressed slowly and there were many setbacks in the first half of 1997. Some arose from within county engineering itself, as the ICEA membership debated the merits of the proposals. Other times, challenges and questions from the Research Board required falling back, taking time to study and answer new issues, and then scheduling another appearance before that board.

In June, Jerry Hare, Pottawattamie County Engineer and 1997 President of ICEA, and Steve De Vries, Mills County Engineer and Chair of the ICEA Computer Committee, traveled around the state and made presentations on the Service Bureau plus TPMS to all county engineers and supervisors that attended the ISAC legislative conferences held in Atlantic, Des Moines, Oskaloosa, Cedar Rapids, Forest City, and Storm Lake. Other members of the computer Committee traveled to district county engineer meetings, as well, making similar presentations.

Efforts culminated at a special statewide meeting of county engineers held in November 1997. At this gathering the Service Bureau and TPMS proposals were presented in depth, discussed at length, and finally approved. An ad hoc committee was appointed to develop plans for organizing a Service Bureau. Meanwhile, work began on the TPMS project, with a multi-jurisdictional consultant selection team formed to receive and review proposals from software development companies.

#### 1a.4 Implementation

The ad hoc Service Bureau planning committee worked through the fall of 1997 and spring of 1998 and developed:

- a) Articles of incorporation & bylaws that counties could adopt to become 28E agreement members of the proposed new agency.
- b) A proposed financial plan calling for initial dues of \$250 for FY'98, to be followed by \$1,000 in FY'99, \$1,500 in FY'00, and \$2,000 for both FY'01 and '02.
- c) A plan to request \$300,000 from the Iowa Highway Research Board to help finance operations during the startup period.
- d) Arrangements with the Iowa State Association of Counties for office space and support services.
- e) A list of nominees for the Service Bureau board of directors.

When these arrangements were in place, each county was solicited to join. Seventy-five did so immediately and, by the end of 1998, 93 of the 99 had done so.

A recruitment effort was next launched to hire the Bureau's first executive director. After searching out and evaluating a number of candidates the Bureau's newly formed Board of Directors selected Steve De Vries to fill the position. He then resigned as Mills County Engineer and began preparations for startup. About six weeks later, on April 13, 1998, the Service Bureau commenced operation.

## **1b. Objectives**

The Service Bureau's goals are:

- a. To help Iowa's county engineers and their employees do their jobs better and faster by supplying them with information and tools via the Internet.
- b. To thereby facilitate better service to the citizens who use Iowa's secondary roads.

## **II Overview**

This section of the report profiles the ICEA Service Bureau, from basic charter through how it operates.

### **1. Charter**

The Iowa County Engineers Association Service Bureau is officially a special sub-unit of county government in Iowa, formed by intergovernmental agreement by its subscribing members, per chapter 28-E of the Code of Iowa.

Each member county has adopted and executed the Bureau's articles of incorporation and adopted a resolution officially approving it. As of 10-01-2000, 98 of the 99 counties had executed the chartering documents, with Ida County being the single non-participant.

### **2. Governance**

The Service Bureau is governed by a Board of Directors composed of both county engineers and county supervisors. One director comes from each of the six ISAC districts around the state. Each year's immediate past President of ICEA also serves as a director, for a total of seven. The district directors are balanced so that there are always three engineers and three supervisors in the group. Each director has an alternate and terms are for three years each. A Chair, Vice Chair, and Secretary are elected to serve as officers.

The Board of Directors meets four to five times per year to review the status of project, review and approve budgets, set dues, establish compensation for staff, and perform the various other business tasks of the agency.

The current Board of Directors is listed on the following page:

Dist.	Role	Name	Special notes	Title	County	Term Expires
ICEA	Member	Robert Sperry	(ICEA Past pres.)	County Engineer	Webster	2000
ICEA	Alternate	Mark Jobgen	(ICEA President)	County Engineer	Dubuque	2001
1	Member	David Anthoney		County Engineer	Boone	2001
1	Alternate	Eddie Peterson		County Supervisor	Webster	2004
2	Member	Roger Broers		County Supervisors	Cerro Gordo	2001
2	Alternate	Richard King		County Engineer	Black Hawk	2004
3	Member	David Paulson	V.Ch.	County Engineer	Carroll	2002
3	Alternate	Larry Landman		County Supervisor	Lyon	2005
4	Member	Mike King		County Supervisor	Union	2002
4	Alternate	Paul Christensen		County Engineer	Guthrie	2005
5	Member	Max Proctor	Chair	County Supervisor	Davis	2000
5	Alternate	Christy Van Buskirk		County Engineer	Keokuk	2003
6	Member	Larry Mattusch	Sec.	County Engineer	Scott	2000
6	Alternate	Dave Kendell		County Supervisor	Jackson	2003
	Ex Officio	Bill Peterson	(ISAC)	ISAC	Statewide	
	Ex Officio	Keith White	(ICEA Comp. Comm.)	County Engineer	Muscatine	
	Ex Officio	LeRoy Bergmann	(Iowa DOT)	DOT	Statewide	

### 3. Office

The Service Bureau office consists of two rooms, subleased from the Iowa State Association of Counties, in the joint AGC / ISAC building located at the corner of East 7<sup>th</sup> and Court Streets in Des Moines, Iowa. The floor space totals 400 square feet and accommodates three workstations.

### 4. Staff

There are three staff members:

- Steve De Vries, P.E., Executive Director
- Matthew Mathers, Web developer
- Bobbi Meister, Data Specialist

The Executive Director is responsible for the Bureau's business affairs membership relations. This role of this position is to identify how information technology can be used to serve county road department needs and to develop the concept and specifications for web applications to serve them.

The Web developer is in charge of setting up and operating the office computers and network, maintenance of the web site, and translating application concepts into working tools.



The Data specialist handles office clerical tasks, mailings, billings, and routine web content maintenance. This position also maintains all the database tables upon which the Bureau's interactive applications depend.

The three person structure naturally fits the arrangement of concept planner, concept builder, and application maintainer.

## **5. Computers and Software**

The office shares a network and T-1 high speed Internet connection with the Iowa State Association of Counties. All staff members have a computer at their workstation, of which two are laptop portables. There are also two servers: one for the Service Bureau website and one for the TPMS website.

## **6. Relationships**

The Iowa State Association of Counties permits the Service Bureau to use their office facilities and equipment as a part of the floor space rent. They also handle the Bureau's accounting, permit bureau staff to participate in their health insurance program, and provide clerical assistance when needed. This arrangement has enabled the Bureau to operate with very low overhead costs and to direct most of the staff's effort towards production and output.

The Bureau maintains a strong relationship with the ICEA Computer Committee as a technical adviser and as spokesman for the county engineering community.

Because some of the information handled by the Service Bureau is shared with or comes from the Iowa DOT, another important working relationship is with the Department's Office of Local Systems. Bureau and Local Systems Staff work hard to collaborate with and support each other in serving the needs of the county engineers.

### **III Chronology**

The following sub-sections outline the growth and activities of the Service Bureau from its startup through October 2000.

#### **April through May, 1998**

##### **Preparations**

The Bureau commenced operation on April 13, 1998. The first few weeks were taken up by ordering equipment, making arrangements for business services and collecting materials to be used in developing the future web site.

The initial website was set up on an Internet Service Provider's remote server in early May. The remainder of that month was spent creating a basic web structure and adding useful files to it. One big item, carried over from the original ICEA BBS, was downloadable AutoCAD versions of DOT standard details and plan notes.

#### **June through September, 1998**

##### **Website startup**

The website's presence and availability for use was announced at the first of June 1998. Following this, the new Executive Director made a second tour of Iowa with ISAC and made presentations at all six legislative conferences. July and August were used to expand and refine the web site, make visits to county engineer offices around the state, and prepare to recruit the Web Developer position. Matthew Mathers came on board in that capacity in mid September 1998.

#### **October through December, 1998**

##### **Development of applications building abilities**

After traveling to visit a number of county engineer offices for orientation, the Web Developer commenced work. About this time, an important discovery was made. The Staff learned of a new software system that enabled interactive database connections via websites. Further investigation into the product, known as "Cold Fusion Server", confirmed that it was powerful, easy to use, and would permit rapid development of specialized applications.

The package was ordered and installed. Shortly thereafter, with only a little practice required, the Web Developer was able to create some prototype applications. They proved so robust and easy to use, that the Bureau adopted Cold Fusion as its exclusive development tool.



**January through June, 1999****Launch of first applications**

Many new services and functions were added during the first half of 1999. In addition, the Executive Director visited many counties and conducted a number of regional training sessions. An attempt was made to enable counties to file their annual budgets and programs via the website. While the application itself proved reliable, reservations about accepting electronic filings emanated from the DOT and many counties were not equipped to access the web. As a result, only 20 submittals were received.

**July through December, 1999****Website growth and more applications**

Web site usage grew substantially in the second part of the year. The website was reorganized and given a custom, standardized format. Little used pages were cut and popular ones expanded. A county roads personnel database was set up to facilitate inter-county communications. With this in place, an attempt was made to persuade the counties to start updating their records online, with only partial success. However, an annual report input and submittal system did much better, with nearly two thirds of the counties making use of it.

Towards the end of the year, end users began telling Bureau staff two contradictory things: that they liked the website and were finding it to be of value - but that it was also too hard to find information within it. This, coupled with findings led to a serious reexamination of the website's design. The resulting conclusions were a) that the web design in use, a hierarchy of pages indexed via Microsoft FrontPage 2000's built in utility features, was too hard to navigate, and b) that the web site was becoming too large to be managed on a page by page basis. After much study and work, Bureau staff concluded that the problems could best be dealt with by:

- a) replacing the "hierarchy of pages" design of the website with one where all pages were stored in and retrieved from a database.
- b) Creation of a new, more intuitive and flexible menu system.

So plans were made to redesign and rebuild the site in 2000.

In parallel with the primary Service Bureau activities, the TPMS project commenced final development in July 1999. This required the Executive Director to meet with the software developer and/or DOT staff several times per month. Although the work progressed at an adequate pace, work on the project was slowed or interrupted by a number of factors:

- a) Despite extensive advance research, a number of subtle special rules for project programming were belatedly discovered.
- b) Whereas the DOT originally used a spreadsheet for their STIP data management when TPMS commenced, it was learned that they

had changed over to a mainframe basis and that it would now be necessary to work out a protocol for exchange of data with that system. This also necessitated restructuring how data would be stored in TPMS.

- c) While there had been no system in the DOT to mesh with regarding project development when TPMS began, it was learned that they had begun to develop one and desired that TPMS would feed local project information into it. This necessitated a number of meetings to work out a protocol for this.
- d) The rules for Federal Aid project programming and development changed when ISTEA rules were modified by new legislation.
- e) The DOT reorganized, with the result that a number of project development tracking requirements were changed or dropped.
- f) Work by Service Bureau staff on the conventional county budgets, programs, and annual reports uncovered additional requirements that needed to be accommodated.

## **January through June, 2000**

### **Construction of database founded website**

A revised and extended county budget and program system was finalized in January 2000. Initially, it appeared that this new system could be used as an official submission tool. However, the office whose director had communicated this to the Bureau was closed and for several months there was no one in charge of the process at the DOT's end. Despite this turn of events, over half of the counties used the system and 33 succeeded in completing their entries and generating an electronic review notice to their affiliated DOT planner. All counties were encouraged to try the system out, as any project programming entries made through it could be ported into TPMS when it became operational.

From February until June, the Bureau's web developer built a new, database driven web site and menu architecture, rebuilt the county personnel data system to make it easier to use, and prepared a FY 2000 Annual Report submittal system.

TPMS work progressed reasonably well until March, when the first live presentations of the user interface were made to the ICEA Computer Committee, the Service Bureau Board of Directors, and the county engineers attending the Spring ISAC conference. As a result of post presentation assessments, it was determined that TPMS would fail unless revised to be easier to use. This led an intense effort to define an alternate interface that would both satisfy end user needs and avoid having to redo the software coding and database designs so far developed.

In the last week of June, a third employee, Bobbi Marie Meister, came on board to fill the Data Specialist position.

## **July through October, 2000**

### **Deployment of Document Library**

July 1<sup>st</sup>, 2000 brought the introduction of the new website architecture, called the "Document Library", deployment of the revised county personnel and salary survey tool, plus activation of the Annual report submittal tool.

With the support of the DOT Office of Local Systems, the Annual report tool was used, for the first time, as the official means of submitting the reports. All but two counties succeeded in doing so.

To get the revised personnel tool off to a better start than in 1999, the Bureau's Data Specialist printed out and mailed each county's staff and salary data to them, then worked with individual counties as needed to secure prompt turn-around. The replies were processed into the system to bring it up to date and efforts are now underway to encourage people to update their records themselves, whenever a change occurs rather than just once per year.

Next the Data Specialist obtained copies of the 66 or so county budgets that hadn't been submitted electronically in the spring and commenced entering their project data to finalize a source database for TPMS. This effort took a little over eight weeks.

The Web Developer handled various corrections and support requests arising from the deployment of the new systems, created an online tool to give counties access to their bi-annual bridge inspection records, and built a combined security/user convenience log in system to replace the patchwork of logins that had arisen as more and more applications requiring passwords were added.

In the TPMS arena, the software developer finished writing the code and installed it on the Bureau's in-house TPMS server for preliminary testing. When the Data Specialist finished loading the county five-year program data, the bureau, also working with copies of both the 2000 STIP and the draft 2001 STIP, began work to merge all available project data into a single, master file. This proved to be an extremely demanding task and consumed over three weeks full time effort. At completion it was found that data had been compiled on 5172 projects, of which 4095 were county projects. The information is being fed into TPMS for the first time as this is written and will be used for testing over the next couple of months. Meanwhile, the Data Specialist will contact all entities that either submit or review projects to seek final verification of the data's accuracy, re-coordinate the data with the DOT, and then load the final data set into TPMS in early December.

Primary goals for the near future are a) to deploy and test TPMS, b) to redo the county budget input system, c) to facilitate online

entry of committee assignment preferences to be used by ICEA leadership in December and d) creation of several smaller tools.

## IV Service Areas

The determination of what services to provide and how to structure them has been an interactive process of exploration and discovery. It has consisted of placing subject matter on the website and observing the degree to which it gets used. Topics for which little user interest is shown gradually get cut back or purged, while those receiving active use get expanded. This informal but effective research technique has gradually refined the Bureau's understanding of what people can and want to do via the Internet. As a result, online services have been classified into six primary categories. One additional category, Online training services, may merit being added in the future.

It should be noted that the Service Bureau tries to serve the needs of not only county engineers but also their key staff members: assistants, technicians, office managers, secretaries, maintenance crew supervisors, shop managers, etc. The goal is to be a resource to all members of a secondary road department. Close associates of county engineering, such as DOT personnel and private organizations with ties to the road business, are also invited to access and use the Bureau's resources. This is done out of belief that anything that serves to improve the speed or quality of communications between secondary road departments and external business partners will be of benefit to both sides and, ultimately, to public advantage.

### 1. Web based services

The Service Bureau website contains many topics, services, and applications useful or appropriate to county engineering. The following sections highlight the general content and structure of each major service area. Copies of the Bureau's homepage and main menu, included as attachments in Appendix A, show the full breakdown.

#### Home Page

The system home page is starting point for using the website. The Service Bureau homepage consists of the following parts:

- a) ICEA Service Bureau ID and logo bar (top)
- b) County logo display box. (top-left corner). This item randomly displays copies of county maintenance equipment logos from around the state.



- c) ICEA Service Bureau staff contacts box (top-left, under the logo display). Provides live hyperlinks for sending e-mail to Bureau staff.
- d) Message of the day box, (underneath the ICEAB logo bar). Used to present important information, news, or announcements.
- e) Headlines area, underneath the Message of the day box. This database driven, scrollable pane presents a list of current news items of interest to county engineering. Hyperlinks to recently added files or external websites may be included. A toggle button is available for going back and reviewing old news items that have been taken off active display
- f) Quick access mini-menu, (left side). The mini menu is the portal to the rest of the web site and consists of three color coded levels:
  - a. Main menu link - takes users to the system main menu page.
  - b. Major subjects menu - permits user to bypass main menu and go directly to major subject sub-menus.
  - c. Links to frequently used items - provides direct connections to key tools, bypassing the menu system completely.
- g) Links cube - (bottom left corner). Provides users with pre-screened commercial website links, classified by job focus, (administration, engineering, maintenance, etc.), by subject matter, (office, yard, equipment, roads, bridges, etc.), and type of information, (product information, price info, specifications, guidelines, etc.) This is maintained as a convenience feature for users who may not have the time to browse vendor websites while scanning a publication but would like to check them out sometime later.
- h) Quick links bar, (bottom). This feature consists of a single row horizontal bar containing links to other websites of frequent interest to county engineering.

## Menu system

The menu structure presents system resources to users in three levels, all of which have the same layout and function. This makes it easy for users to learn: once taught how to use the main menu, they are equipped to navigate all sub-menus without further training. The main menu presents 7 primary options. Each sub-menu can present up to seven sub-choices for each main option. And there are seven sub-sub-selections for each sub-choice. Although not all combinations are in use, this structure has the potential to identify  $7 \times 7 \times 7 = 343$  different topics. The menu is built around a database and can be expanded anytime it becomes necessary, without editing any web pages. Should 343 topics someday prove insufficient, the menu could be expanded to four levels - for 2401 options; or the number of choices on each could be increased to 9, which would identify 729 separate items in three levels.

To further classify and organize files and documents, an unlimited number of topics and sub-topics can be associated with any terminal menu selection. These are attached to files as attributes and govern the order in which files are displayed in a terminal menu item's table of contents page. They may also be used to filter the list of files to display only those in which a user is particularly interested.

The menu system was conceived to be useful to both the novice and experienced user. The former can start from the main menu and "drill down" through the layers of choices on step at a time. People with experience who want to return to a topic previously visited, can use the menu's unique layout to bypass every other step, permitting most subjects to be accessed in just one or two clicks of the mouse.

The following sections outline the contents of each major menu area:

## 1a. News / Current Events

This section is designed to supply secondary roads users and their industry colleagues with up to date news and information from, about, and pertinent to county engineering.

		County People		
		County Road News		
		Developing Issues		
		DOT News & Updates		Field Automation
		Factoids		DOT Letting Results (under development)
		Govt. Agency Info	Submit Event (under development)	Proj. Dev. Status
		Other News	View Events List	Proj. Dev. Info
<b>Current Events</b>	Find the most recent information:		View Calendar	Cmnt Critical Dates
<b>Calendar</b>	Determine when and where events are scheduled:			Post Notice
<b>Project Status</b>	Check on project development issues here:			County Engineer
<b>Job Notices</b>	Post or view job opening notices			Assistant
<b>Legislative</b>	Stay abreast of critical issues and participate in the process			Technical
<b>ICEA Proceedings</b>	Learn ICEA's plans, accomplishments, and leadership		ICEA Objectives	Maint. / Shop
<b>Service Bureau</b>	Information about the ICEA Service Bureau	ICEA President (under development)	Legislative Reports	Other
		Objectives (under development)	Const. & Bylaws	
		Staff (under development)	Enrolled Bills	
		Organization	Exec. Board	
		Proceedings	ICEA Comm.	
		Activities	ISAC Comm.	
		Training & Support (under development)	State Boards	
			National Board	
			National Affairs	



## 1b. Communications

The communications section is designed to let county engineers and their business colleagues, such as DOT staff members, look up and communicate with individuals, sub-groups, or all counties - and with members of other groups

	ICEA Affiliates (under development)		
	Comm. Mbr. Lookup		US Senators / Reps (under development)
	Staff Lookup/Geographic	Find by Office	By District (under development)
	County Roster	Find by Name	By Committee
<b>Counties</b>	Locate & send msgs to county people:	Key Contacts	Representatives
<b>Iowa DOT</b>	Look up key DOT staff and send them messages.		Senators
<b>Legislators</b>	Identify legislators and communicate with them on active issues		
<b>Contractors</b>	Look up contractors, then send messages or RFP's to them		
<b>Suppliers</b>	Look up suppliers, then send messages or RFP's to them		
<b>Other Contacts</b>	Connect and communicate with other groups linked to county roads		
<b>Govt. Agencies</b>	Contact state and federal agencies	Prof. Associations	
	Local	Road User Groups	
	MPO's	Utilities	
	RPA's	Railroads	
	State		
	Federal		
	Tech. Transfer		

## 1c. Downloads

The download area contains data-files, documents, forms, CAD graphics, images, maps, and utility software that users may download and used locally. Typical items are:

- A set of DOT CAD standard details and notes, converted from the Intergraph format used by the Department to the AutoCAD format required by the counties.
- Ready-to-finish press releases
- Standard DOT administrative and project forms
- Financial information
- Model ordinances, resolutions, and contracts

	Miscellaneous	HR Management	
	Demographic	Public Relations	
	Road System	Job Descriptions	
	Rev. & Finance	Policies & Proc.	
	Administrative	Contracts	DOT Fieldbook Pages
<b>Data Files</b>	Find and download useful data	Ord. & Resolutions	Projects
<b>Model Documents</b>	Download model document formats. Customize as needed.		Gen. Admin.
<b>Electric Forms</b>	Fill out these forms on-screen, then print, fax, or e-mail then to the recipient.		DOT CAD Details
<b>AutoCAD Resources</b>	DOT graphics, shareware page layouts, custom menus, and LISP routines		Other CAD Details
<b>Images</b>	Images of various types and applications pertaining to county roads		Menus & LISP
<b>Software</b>	Public domain software that you may download and use		General
<b>MAP / GIS Resources</b>	Files and data available for use	Utilities	Roads
	Maps	DOT Software	Bridges
	GIS	Shareware	Equipment
		Commercial	Maintenance
			Shop
			Graphics

## 1d. On-line applications

The online applications area provides access to specialized, database driven applications hosted from the Service Bureau's main sever. Currently there are four functional areas:

a) Staff and salary survey tool

This area permits counties to list staff members and enter salary & benefit data. Each county is responsible to maintain the data for their own staff. In return for doing so, they may all access associated analysis tools to compare themselves to other counties, obtain regional and statewide averages, view a detailed report on county engineer compensation, and obtain years of service information.

b) DOT reports and information access tools

This collection of tools permits counties to submit and receive DOT review of budgets, programs, and annual reports. Pertinent data is carried forward from report to report both for convenience and error reduction. In addition, counties can access bridge SI&A data for all county owned structures. Special analysis and reporting tools will be added to the bridge tool in the near future.

c) Data collection and sharing tool

Permits counties to enter data on equipment purchases to create statewide pool of market information.

d) Online surveys report area

When statewide surveys area needed, the Bureau can compose a survey form, send out e-mails with links back to each county's copy, collect responses in a database, and generate a final report that may be viewed online.

	Years of Service	
	Add / Edit Contact Points	SI & A Reports
	Salary Survey Analysis	Annual Report
	Update Salary Survey	Budget & Program
	Enter / Edit Staff Info	Post Local Letting
Staff & Salaries	Input data for your county; then analyze collected results from all:	Request PN
DOT Functions	Tools for interacting with and submitting reports to the DOT:	
Information Sharing	Enter data from your county. Help build pool of information useful to all:	Equipment Prices
Online Surveys	When requested fill out and inspect internal ICEA surveys here:	
		Fill Out Survey
		View

## 1e. Reference center

The reference center holds and organizes information that provides guidance or advice to end users. This type of information tends to be relatively stable and doesn't change much as time passes. Therefore this section presents the information in fast loading HTML format. The goal is to help users find laws, guidelines, or advice quickly, so that they may respond to breaking situations as effectively as possible. In addition to presenting the information, references in one document are hyperlinked so that the user can jump directly to the cited text without having to exit from the first.

	History	Safety	Traffic Controls	
	Drainage Law	Personnel	Pavements	
	Case Law	Risk Mgmt.	Bridge Design	
	Iowa Admin. Code	Asset Mgmt.	Road Design	
	Code of Iowa	System Admin.	Hydraulics	
<b>Legal / Historical</b>	Statute, admin. code, & case law	General Bus. Mgmt.	Materials	
<b>Road Dept. Mgmt.</b>	Information on managing a county road department		Traffic / Safety	County Eng. I.M.s
<b>Engineering Info</b>	Technical analysis and design guidelines			Design
<b>IA DOT Manuals</b>	Online information from the DOT's project and construction manuals			Construction
<b>Research Info.</b>	Topics of study and research results from a number of sources			Materials
<b>Product Info.</b>	Technical information on the use of various products		IHRB	
<b>Job / Task Related</b>	Guides to assist with day to day tasks	Const. Mtls.	TRB	
	Office	Maint. Mtls.	NCHRP	
	Engineering	PCC	Other	
	Road Main.	ACG		
	Shop	Other		
	Non-road Functions			

## 1f. Business & trade

The Business and trade area of the ICEA Service Bureau website is the least developed sector. This results primarily from the fact that county road departments purchase only a limited number of items and usually from local vendors. This makes it difficult to provide e-commerce services that people would find valuable. Nonetheless, several such areas have been set up and have seen modest usage. By mid 2001, the bureau will build and deploy a Corrugated Metal Pipe order tabulation, request for quotes, and final order generation. This system will be new both to counties and to the vendors that sell to them. Initial contacts with vendors have generated interest on their part, but this proposed service must still be considered experimental.

The Bureau may solicit Iowa based vendors to place advertisements in a special section of this sector to see if there would be benefits for them and the counties from doing so.

<b>Buy &amp; Sell Classifieds</b>	Post an Ad (under development)	Accept & Notify (under development)	Office
	View Current Ads	Monitor Replies (under development)	Engineering
	Post & respond to "Want to sell" or "Want to buy" ads here	Post RFP (under development)	Maintenance
	Future site for posting and receiving replies to RFP's and RFQ's		Shop
<b>RFP Center</b>	Future site for posting and receiving replies to RFP's and RFQ's		Office
<b>Product Ads</b>	Manufacturer / Vendor ads for county road products		Computers
<b>Equipment Ads</b>	Manufacturer / Vendor ads for county road equipment		Engineering
<b>Service Ads</b>	Manufacturer / Vendor ads for county road services		Maintenance
<b>Consultant Info</b>	<b>QBS</b>	Qualifications & experience info.	Office
		Hydraulics	Asset Management
		Road Design	Engineering
		Bridge Design	Maintenance
		ROW	Shop
		Archaeological	
		Environmental	
		Geotechnical	



## **Document Library design and operation**

All viewable and downloadable files maintained by the Service Bureau are stored in a special database designated the "Document Library". As each file is logged in, it is associated with a terminal menu item and assigned a topic plus sub-topic heading. Data about the type, size, origin, use, and administration of the file are captured at the same time.

When a user clicks on a terminal menu selection, the system queries the database and presents a table of contents page that lists all available files for that subject area. The TOC page lists a) Topics, b) Sub-topics, c) File names, and d) a file information link. Users may use the Topics and Sub-topics lists to narrow the display down to just those files that fit a limited scope. To find an item of interest, they next scroll through the list. To open and view or use a file, one clicks on the file name. To find out more about the file before opening it, one clicks on the file information link.

To help users find newly added material, files will display a "New!" tag for a week after they've been loaded.

## **2. Additional services**

Although most Service Bureau functions are delivered via the Internet, the agency serves county engineering in a few other ways.

### **2a. Information technology agency**

When appropriate, the Bureau has represented the interests of the county engineering community, either as an information gatherer or as an active policy representative.

- The Bureau has played an ongoing role in working with the Iowa DOT to assure that county needs are taken into account when new field inspection and project administration software is introduced. In the fall of 1999, the Bureau help orchestrate training for all counties in the use of the DOT's FieldManager software system
- The Service Bureau participated in planning meetings for GASB-34's introduction to Iowa. The goal was to keep abreast of developments and keep county engineers informed and also to generate ideas on how to comply with the new financial accounting guideline without excessive cost. The Bureau may, if authorized by ICEA, explore building an online application to facilitate low cost compliance.
- Bureau staff have attended, when asked, meetings between ICEA and state agencies. Most recently, this involved attending a session with the Iowa DNR regarding proposed fugitive dust

regulations. In this instance they were asked to evaluate the proposed computer model that the DNR staff wants to use.

## **2b. Training and support**

Training and support encompasses a number of roles.

- a) The Service Bureau obviously must support its own website, especially those parts involving online applications. To date, this responsibility has been well met, with most support requests responded to on the same day as received - and many have been solved while the inquiring party was still on the phone. This speed and promptness is a function of the Bureau's small size and the ease with which the Cold Fusion code can be edited and fixed.
- b) There is also a need to continue training end users about what's in the web site and how to use it. The Executive Director has visited approximately seventy counties to provide this service on site and in person. In addition, presentations have been made at numerous district meetings, statewide conferences, and regional training session.
- c) A generally unmet need exists among county users for more training in the Microsoft windows environment and with the Microsoft Office suite of application software. No work has been done in this area but an effort may be made in 2001.
- d) The launch of the TPMS system this fall will bring with it a need for a tremendous amount of training and support. To that end, plans are being made for a publicity campaign, to be followed by an introductory conference in January 2001. After that, a series of regional training sessions will be held around the state.

## **3. Transportation Program Management System**

TPMS qualifies as a separate major service area of the Bureau. This initiative has been under consideration and development almost as long the Service Bureau itself. It will serve to automate two major processes required to get road and bridge projects ready for bid. It is also a multi-jurisdictional project intended to service not only counties but also cities, planning agencies, DOT planners, DOT central office personnel and District Local Systems Engineers. It is funded by a separate Iowa Highway Research Board project, HR-394, and will be more fully detailed in a final report planned for next September.

### **3a. Project Programming**

Project programming is an annual, repeating process in which units of local government identify what future road improvements ought to be made, then propose what year they should be built and how the work will be financed. These plans are reviewed by state and regional agencies to assure compliance with a multitude of state and federal requirements and constraints. When finally



approved the documents determine which projects may be let in the following fiscal year.

TPMS will replace the existing method of maintaining numerous, separate paper copies of the proposed programs and, instead, keep only one record per project per year. The system will then permit users to view the projects from a County Program perspective, or a Regional Transportation Improvement Plan perspective, or a State TIP perspective. Approval processes will be supported via online functions, users will be able to communicate with each other through the system when needed, and electronic copies of project documents may be stored in the system to become accessible to all related users.

The current schedule is for the system to become live with test data before the end of October 2000. Beyond that, the goal is to have the system live for purposes of editing and updating programs in the spring of 2001 and to be ready for official electronic submissions and approvals by 2002.

### **3b. Project Development tracking**

After a project has been programmed it must be developed for bid letting before it can be built. The project develop process includes surveys, design, permits, and right of way acquisition. It is a linear process that proceeds sequentially from start to finish. It does not repeat like the programming process and many take as little as six month or as long as ten years to complete, depending on project complexity. It involves a number of instances where a project sponsor must prepare a set of documents and submit them to a DOT reviewer for action before they made proceed to the next step.

TPMS's Project Development module will link project sponsors and reviewers together and help everyone keep current on each project's status. As with the programming side, inter-agency communications will be supported and electronic documents may be attached to the project file.

## V Research and Development

As with any enterprise, the Service Bureau must not only maintain the services already developed but anticipate future needs. In the information technology arena this is complicated by the fact that hardware, software, and communications abilities are constantly progressing, which challenges every organization to look ahead and try to imagine what future innovations might be used for. To meet these needs, the Service Bureau has undertaken several initiatives with the goal of developing new service concepts twelve to eighteen months in advance.

### 1. Modes

The following sections outline the Bureau's research and development activities to date.

#### 1a. Develop, deploy, and observe

Many of the Bureau's service development ideas arise from observations garnered by supporting the use of current ones. Items that get used a lot can obviously be enhanced and expanded, while those that don't must either be restructured or dropped.

#### 1b. Respond to user requests

As users try out and work with new tools, they often identify additional content and services they would like to see. These ideas are tallied when received and later used to plan upgrades. Sometimes they call for something that's beyond the scope of any current tool and become the foundation for future services.

#### 1c. Convene focus groups

To look ahead and also to expand the breadth of its offerings, the Bureau has developed a special, unstructured, brain-storming methodology. End users are invited to sit down and try to identify potential new services, gradually add some details to them, and then rank them in A, B, C, D priority groups. Two such meetings have been held with representatives of the Iowa County Engineers Office Organization, a group made of secondary roads office managers and secretaries. A similar effort has been undertaken with the ICEA Computer Committee. In 2001, the Bureau will reach out and attempt the same concept with representatives from the Maintenance Manager's association.

To date the brain-storming sessions have produced about 15 ideas, of which 5 or 6 appear to be likely candidates for near term development. Some of the ideas follow:

- a) Set a road closure notification service. (ICE00)
- b) Create information center to assist counties in recruiting new employees: classified ad rates and contacts, placement agency

contacts, school and college job placement addresses and phone numbers, etc. (ICEOO)

- c) Online tool for filling out project finalization forms. (ICEOO)
- d) Downloadable safety checklists for maintenance department crew supervisors.

#### **1d. Explore new hardware and software capabilities**

The Bureau continually monitors technological developments to assess how they might impact the overall framework in which it works and whether or not the innovations could be used to provide new or enhanced services.

Current items with potential include:

- a) XML - A special data tagging and definition specification. This item may make it much easier to build database founded websites and facilitate improved data sharing capabilities.
- b) Hand held devices - like the Palm Pilot and Pocket PC have potential to bridge the gap between the Service Bureau and providing services to county employees working in the field.
- c) Wireless Internet access -- may make it possible to provide combined communications and database services.
- d) High speed Internet access - when it become widely available, the Bureau's web pages can be graphically enhanced to improve legibility and ease of use.
- e) Remote printing - it's currently awkward to generate and print reports for end users. The reports have to be compiled in the Bureau's office and e-mailed to the subscriber for final output. When remote printing via Internet becomes common, it will facilitate direct output to a printer designated by the user.

#### **1e. Monitor what other websites are doing**

The last avenue of research and development is to simply observe what other web developers are doing. An idea that came from this avenue is to use the homepage login and user ID system as a way to identify user's primary interests when they connect and immediately feed customized information to them.

This might work as follows: when a county engineer logs on, the system will advise him, via an extra pop-up window, of upcoming meetings scheduled for committees he/she serves on, new files in subject areas in which interest has previously been expressed, and remind that certain staff members need to renew their aggregate technician certifications.

## **VI Future Directions**

The Service Bureau have been in operation for three full years next April. By that time, most originally planned services will be in place and it will be appropriate to explore the organization's future.

### **Service enhancements**

All existing services remain open to refinement. In addition, expansion into providing some e-commerce functions will become a priority. Beyond that, there will be a need for training services and possibly for web based instruction modules to provide county employees with online training in work methods, safety, and public relations.

### **Expansion of user base**

It's not anticipated that the Bureau's core user group will grow much beyond counties, DOT staff, and planning agencies.

### **Service to other county offices?**

Some inquiries have been made of Bureau staff as to whether or not they would share the web site technology so far developed with ISAC and other county offices. The ICEA computer committee and the ICEAB Board of Directors have indicated cautious support for this, on the condition that it not detract from maintaining forward progress for county engineering.

### **Acceptance of advertising?**

The issue of whether or not to accept advertising is a difficult one and has not yet been resolved. It could be a source of some revenue, which would no doubt be useful. And it could be a valuable service that would help vendors and counties connect and do business more easily. On the other hand, it will create administrative overhead, and may not suit either vendors or engineers.

The county engineering community has been fairly unanimous in stating that they do not want random, involuntary ads appearing on the current website. They are more favorable to the idea of a dedicated section where vendor ads could be posted for viewing. Vendors, on the other hand, prefer ads that can't easily be ignored or avoided.

## VII Role and Value

This section explores how the Service Bureau has impacted end users and attempts to evaluate its benefit vs. cost status.

### 1. Levels of impact

The Bureau impacts the county road environment at several levels, from county staff member to county road user. This is difficult to evaluate in any formal, explicit way, because the effects are subtle and interwoven with other factors. So, the following sections outline what is believed to be the case, as determined from observation and user contacts.

#### 1a. Staff member impacts

The Bureau believes that its services are well received and considered valuable by county users. This perception is drawn from receipt of support requests -- which provide implicit confirmation of system use, from expressions of support received at meetings, and from how fast users begin to call in when, on rare occasion, the system is temporarily offline.

The news and updates area is the most popular section of the website, followed by the communications center, then the downloads area, and then the online applications.

Each staff member in a secondary roads office has different information access needs, as defined by their role. It appears that enough content has been installed so that the interests of Engineers, Assistants, Technicians, and Secretarial staff are being met. Less progress has been in providing services for maintenance department and shop managers. However, there will be continued work in that area as Internet connections in county yard offices become more common place.

#### 1b. Department efficiency

One of the Bureau's service philosophies has been that it should attempt to serve not only the County Engineer but all key staff members of a secondary roads department. An additional goal has been to try to enable personnel to get more tasks completed independently and to perhaps be able to handle roles they were previously not able to deal with through lack of tools or information.

There is no absolute evidence that these objectives have been fulfilled but anecdotal information suggests that things are moving in that direction. When its fully achieved, the fact that supporting staff members can do more on their own will free up



some of the county engineers' time to be spent on advancing the overall quality of their operations.

### 1c. Public service enhancement

The ultimate test of the value of an agency such as the Service Bureau is whether or not its existence creates a net improvement in how well county roads are administered and maintained. At this time, it's not possible to accurately assess this impact. Bureau staff believe that the website services contribute towards better operation and maintenance, and that TPMS will contribute to get construction projects ready for letting faster and at less cost.

## 2. Benefits

The Bureau appears to be delivering a number of benefits to county road departments.

### 2a. Direct

Direct benefits are those that accrue immediately and specifically from people USING the Bureau's services. These items fall into several categories:

- a) Those which enable an employee to complete a task more quickly, thus freeing up time to be used on other things.
- b) Those which facilitate increasing quantity or quality of output produced per unit of time.
- c) Those which enable a direct reduction of cash expenses.
- d) Those which enable indirect savings by enhancing the ability of department staff to preserve and extend the lifetime of the public's road assets.

To date, it appears that the Service Bureau has had the most impact on items a, b, and d. It is difficult to achieve much item c results, but the planned CMP order/FRQ tool may deliver such benefits and TPMS likely will.

### 2b. Strategic

Strategic benefits are those that accrue simply because the Service Bureau EXISTS. Some of these impacts are as follows:

- a) Prior to the creation of the Bureau, the outside world didn't really know how to connect with county engineering community, since there was no permanent point of contact. Now external parties often consult the Service Bureau first to find out who they should contact to accomplish whatever goal they have in mind.
- b) The Bureau's presence enables counties to handle their affairs internally, instead of having to seek the assistance of the DOT or ISAC to perform tasks for them.
- c) Through the news and communications services, ICEA is able to become conscious of and respond to emerging issues more

promptly, saving time and keeping small problems from becoming large ones.

- d) The Bureau provides county engineering with the ability to propose handling future mandates on its own rather than have the duty assigned to an external agency.

## 2c. Collective

Collective benefits arise from the ability to POOL resources and SHARE costs. The presence of the Service Bureau enables counties to:

- a) Spread the cost of developing applications software over a large base, thereby minimizing the cost to each.
- b) Share information, such as equipment prices, wages, and benefits.
- c) Share knowledge, wherein a new county engineer can use the communications tools to obtain advice from their peers on how to deal with various issues.

## 3. Conclusions

The Service Bureau has met two key tests of value: end users appear to find it of sufficient utility that they use it a lot and quickly react if it goes offline, and 98 counties have expressed a willingness to pay annual dues of \$2000 per year to support its continuation.

Bureau staff believe that the services being provided help the individual staff member, the secondary road department as a whole, and the driving public at large. The benefits conferred on county engineering by the Bureau arise from its operation, existence, and facilitation of resource sharing.



## **VIII Summary and Conclusions**

### **1. Summary**

The ICEA Service Bureau, created in 1998 after nearly seven years of prior effort, has now existed for 2½ years. Although assisted in starting up by a grant of \$300,000 from the Iowa Highway Research Board, it now operates exclusively on the basis of dues paid by 98 member counties. Its three person staff operates out of an office in Des Moines, Iowa, where the 28E agency subleases space from the Iowa State Association of Counties. Services, provided via the Internet, include News & updates, Communications support, Files for download, On-line database driven applications, a reference center, and a business area. Future services are being identified by both formal and informal processes and the Bureau has established itself as a valued member of the county engineering world in Iowa.

### **2. Conclusions**

The following conclusions have evolved from the experiences encountered in planning and implementing the Service Bureau:

#### **2a. Value and role of the Internet**

Without the advent of the Internet, establishing and operating the Bureau would been much more difficult. The internet appears to be the telephone what the latter was to the telegraph: a new and improved communication method that will eventually supplant its predecessor. All that has been accomplished to date has been done with two Internet protocols: HTTP and FTP. It seems likely new and improved protocols, along with universal high-speed access, will radically extend Internet technology over the next ten or twenty years.

The key issue in the use of web based technology in the road business is finding ways to help people enhance their performance, since information technology alone cannot directly touch or maintain the physical road environment.

#### **2b. Website service modes**

The Service Bureau has effectively explored one particular mode of use of the Internet: that of providing resources to help government employees do their jobs. A number of other modes remain open to development: Government to State agency linkages, Government to Public service delivery, Government regulated administration, Government interaction with vendors and suppliers.

## **2c. Staffed vs. collaborative operation**

The Bureau has clearly demonstrated that having dedicated staff, who are knowledgeable of and dedicated to the end users business, is essential to success. Efforts to develop a collaborative facility where end users individually submit contributions to be shared with others did not work out.

## **2d. Areas of Service**

The primary areas where a website can serve needs are News & Updates, Communications, File downloads, Database driven online applications, Reference center, Business services, and, potentially, Online education.

## **2e. Hardware and software requirements**

The hardware and software required to set up a fully functional website with database driven applications runs around \$10,000.

The Service Bureau server has two Pentium processors and 512 Mb of memory, with a 13 Gb hard disk drive. It uses the Windows NT operating system along with Internet Information Server, Cold Fusion Server 4.5, and Norton Anti-virus, server-edition. To date 3 Gb of hard disk space have been used and processor/memory consumption averages about 5% of capacity.

Client PCs now nearly all have Internet web browsing software when purchased.

The single most important determinant of success in using the Internet is whether or not one has a fast enough connection. While 28K and 56K modems are adequate, real ease of use and speed requires a 128K or faster connection. It's now advantageous to spend more on connection speed and less on computer power.

## **2f. Staff roles and competencies**

The three bureau staff members each bring different competencies and abilities to the operation.

The Director's role is to identify what end users need in the way of information services and to translate the findings into clearly defined application specifications.

The Web Developer takes the data requirements, interface design specs, and functional abilities defined by the Director and creates applications, via the Cold Fusion development software, that will perform as needed via the Internet.

The Data Specialist is charged with keeping the various databases behind the applications up to date, so that users will always have current information to work with.

## 2g. User capabilities

When the Bureau started operation in 1998, only 24 counties had any form of Internet access. Today, all 99 have access and many have high speed connections via their office or courthouse network. Similarly, web browser competency has become nearly universal among county engineer office staff. Maintenance employees are further behind; it will take perhaps another five years to get 75 percent of county yard offices online.

User competency lags most in the use of Microsoft's suite of Office applications and many would benefit from training how to use those tools to full advantage.

## 2h. TPMS

Experience with TPMS development has shown that it is possible to build a multiple jurisdiction service tool as long as one is extremely alert and adaptable. In these situations, there is no central authority to approve or disapprove concepts. Instead, it's necessary for the development team to constantly check with all the different parties and viewpoints that must be served. This brings out conflicts and extra requirements that wouldn't have to be dealt with in a centrally managed operation. Another challenge is that, since all the parties are nominally independent of each other, any one of them can change procedures at any time without coordination with others. This has been the cause of several mid-stream design changes. Last, in today's rapidly changing environment, a two or three year development cycle is a long time: procedures, rules, and processes can significantly change between the time that work starts and that when it's complete.



October 06, 2000

An information resource for Iowa's 99 county road departments

9:18 AM

## Staff:

Steve De Vries, PE  
Matthew Mathers  
Bobbi Meister

**TPMS Update:** After a lot of slicing and dicing, we've succeeded in merging programming data for all projects listed in the 2000 STIP, 2001 STIP and the 2001 CFYP. Final count: 5172 projects, of which 4095 belong to counties. Starting next week, we will ask your assistance by sending out verification listings and asking that you confirm their accuracy, or indicate corrections needed, before we officially load them into TPMS. [We'll use the current data, in the meantime, for testing the system, but will replace it with finalized records in early December.]

## Main Menu

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County Eng. I.M.s

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## CURRENT HEADLINES . . .

- \* **Note from Harrison County:** County Engineer Tom Stoner will be undergoing coronary bypass surgery next week in Omaha. Assuming successful surgery, he will be several weeks in recovery.
- \* **ICEASB Update:** Minutes from the Board meeting held 9/28/00.
- \* **New - from ICEA PR committee:** Sample snow and ice control press release.
- \* **New - from ICEA PR committee:** Sample gravel road maintenance press release.  
[Menu location: Downloads: Documents : Public Relations ]
- \* **ICEOO Meeting:** The Iowa County Engineers Office Organization will be having their annual meeting next week, on October 12-13, 2000. Topics will include Violence in the Workplace, The Power of Humor, ICEA Service Bureau, Office of Local Systems and Joan Johanson (Iowa's Erma Bombeck).
- \* **County News:** Four new items added 10/3/00
- \* **Workers' Compensation Law** requires most employers to provide benefits to eligible employees who are injured on the job to learn more see our new: Question & Answer About Workers' Compensation Law
- \* **IA DOT Info tech plans:** We've come across a list of all the information technology projects planned by or under development at the Iowa DOT. Our colleagues have set an impressive set of goals for themselves.
- \* **County News:** Six new items added 9/28/00.
- \* **End of one era; start of a new one:** The DOT Office Local Systems has been relocated to the northwest building of the DOT complex. They are on the south side, first floor on the east end. Visitors can enter via the hallway just west of the building's elevators.
- \* **Former Dickinson County Engineer passes on:** Paul Konrad, P.E. Dickinson County 1959-1990, County Engineer from

Hyperlinks

Quick Links: Iowa DOT ISAC NACO NACE FHWA IowaAccess NRCS-GIS AASHTO

<b>ICEA Service Bureau</b>		<b>Service Bureau</b>		
<b>Main Menu</b>		ICEA Proceedings	Govt. Agency	
		Legislative	Others	Maps / GIS
		Jobs	Suppliers	Software
		Project Status	Contractors	Images
		Calendar	Legislators	AutoCAD
		Current Events	Iowa DOT	Forms
<b>News Area</b>	Find out what's going on:	Counties	Documents	Table of Contents
<b>Find &amp; Contact</b>	Locate, communicate, set up meetings with:		Data	Alpha Index
<b>Downloads</b>	Access useful files and download them to your computer			Check for New Files
<b>Help</b>	Get assistance, browse website contents, search for something specific			User's Guide
<b>Online Tools</b>	Use these database driven tools to perform work online			Contact Us
<b>Reference Lib.</b>	Get the answers you need from these areas:		Staff & Salary	Search This Site
<b>Business Area</b>	Solicit, evaluate, select, & purchase:	Legal / Historical	DOT Related	
	Buy & Sell	Rd. Dept. Mgmt.	Info Sharing	
	Solicit RFP's	Engineering	Online Surveys	
	Product Ads	DOT Manuals		
	Equipment Ads	Research		
	Service Ads	Product Tech. Info.		
	Consultants	Job / Task Related		
<b>Instructions:</b> Click main headings for more detail on subheads. Or skip ahead by clicking subheads.				



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Click main headings for more detail on subheads.  
Or skip ahead by clicking subheads.

## ICEA Service Bureau

**Find and Contact**

Find and Contact		ICEA Affiliates (under development)		US Senators / Reps (under development)	
		Comm. Mbr. Lookup		By District (under development)	
		Staff Lookup/Geographic		Find by Office	
		County Roster		Find by Name	
				Key Contacts	
Counties	Locate & send msgs to county people:			Representatives	
Iowa DOT	Look up key DOT staff and send them messages.			Senators	
Legislators	Identify legislators and communicate with them on active issues				
Contractors	Look up contractors, then send messages or RFP's to them				
Suppliers	Look up suppliers, then send messages or RFP's to them				
Other Contacts	Connect and communicate with other groups linked to county roads				
Govt. Agencies	Contact state and federal agencies	Prof. Associations			
		Local		Road User Groups	
		MPO's		Utilities	
		RPA's		Railroads	
		State			
		Federal			
		Tech. Transfer			

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## ICEA Service Bureau

**Download Options**

	Miscellaneous	HR Management	
	Demographic	Public Relations	
	Road System	Job Descriptions	
	Rev. & Finance	Policies & Proc.	
	Administrative	Contracts	DOT Fieldbook Pages
<b>Data Files</b>	Find and download useful data	Ord. & Resolutions	Projects
<b>Model Documents</b>	Download model document formats. Customize as needed.		Gen. Admin.
<b>Electric Forms</b>	Fill out these forms on-screen, then print, fax, or e-mail then to the recipient.		DOT CAD Details
<b>AutoCAD Resources</b>	DOT graphics, shareware page layouts, custom menus, and LISP routines		Other CAD Details
<b>Images</b>	Images of various types and applications pertaining to county roads		Menus & LISP
<b>Software</b>	Public domain software that you may download and use		General
<b>MAP / GIS Resources</b>	Files and data available for use	Utilities	Roads
	Maps	DOT Software	Bridges
	GIS	Shareware	Equipment
		Commercial	Maintenance
			Shop
			Graphics

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## ICEA Service Bureau

**Online Tools**

	Years of Service	
	Add / Edit Contact Points	SI & A Reports
	Salary Survey Analysis	Annual Report
	Update Salary Survey	Budget & Program
	Enter / Edit Staff Info	Post Local Letting
<b>Staff &amp; Salaries</b>	Input data for your county; then analyze collected results from all:	Request PN
<b>DOT Functions</b>	Tools for interacting with and submitting reports to the DOT:	
<b>Information Sharing</b>	Enter data from your county. Help build pool of information useful to all:	Equipment Prices
<b>Online Surveys</b>	When requested fill out and inspect internal ICEA surveys here:	
		Fill Out Survey
		View Results

**Instructions:**

Click main headings for more detail on subheads.  
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## ICEA Service Bureau

**Reference Center**

	History	Safety	Traffic Controls	
	Drainage Law	Personnel	Pavements	
	Case Law	Risk Mgmt.	Bridge Design	
	Iowa Admin. Code	Asset Mgmt.	Road Design	
	Code of Iowa	System Admin.	Hydraulics	
<b>Legal / Historical</b>	Statute, admin. code, & case law	General Bus. Mgmt.	Materials	
<b>Road Dept. Mgmt.</b>	Information on managing a county road department		Traffic / Safety	County Eng. I.M.s
<b>Engineering Info</b>	Technical analysis and design guidelines			Design
<b>IA DOT Manuals</b>	Online information from the DOT's project and construction manuals			Construction
<b>Research Info.</b>	Topics of study and research results from a number of sources			Materials
<b>Product Info.</b>	Technical information on the use of various products		IHRB	
<b>Job / Task Related</b>	Guides to assist with day to day tasks	Const. Mtls.	TRB	
	Office	Maint. Mtls.	NCHRP	
	Engineering	PCC	Other	
	Road Main	ACC		
	Shop	Other		
	Non-road Functions			

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## ICEA Service Bureau

**Business Center**

	Post an Ad (under development)	Accept & Notify (under development)	Office	
	View Current Ads	Monitor Replies (under development)	Engineering	
<b>Buy &amp; Sell Classifieds</b>	Post & respond to "Want to sell" or "Want to buy" ads here	Post RFP (under development)	Maintenance	
<b>RFP Center</b>	Future site for posting and receiving replies to RFP's and RFQ's		Shop	Office
<b>Product Ads</b>	Manufacturer / Vendor ads for county road products			Computers
<b>Equipment Ads</b>	Manufacturer / Vendor ads for county road equipment			Engineering
<b>Service Ads</b>	Manufacturer / Vendor ads for county road services			Maintenance
<b>Consultant QBS Info</b>	Qualifications & experience info.		Office	Shop
		Hydraulics	Asset Management	
		Road Design	Engineering	
		Bridge Design	Maintenance	
		ROW	Shop	
		Archaeological		
		Environmental		
		Geotechnical		

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